

Amendment under 37 C.F.R. § 1.111
Reply to Office Action of July 22, 2009

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested. Claims 1-12 are pending in the application. With this amendment, Applicants cancel claims 9 and 12.

Objection to the Drawings

In the present Office Action, the Examiner objects to the drawings alleging that the “magnetic flux guide magnetically coupled with the magnetization free layer” recited in claims 9 and 12 is not shown in the drawings. Solely to advance prosecution of exemplary embodiments of the invention, Applicants have cancelled claims 9 and 12. Accordingly, Applicants request that the objection to the drawings be withdrawn.

Rejection of the Claims

Claims 1-5, 7, 8, 10, and 11 stand rejected under 35 USC §102(a) as being anticipated by Hujanen et al. (US Publication No. 2002/0076837). Claim 6 stands rejected under 35 USC §103(a) as being unpatentable over Hujanen et al. in view of Katti et al. (US Patent No. 6,707,084). Claims 9 and 12 stand rejected under 35 USC 103(a) as being unpatentable over Hujanen et al. in view of Watanabe et al. (US Publication No. 2001/0040007). Applicants respectfully traverse these rejections.

Applicants respectfully submit that independent claims 1, 7, and 10 recite, among other things, an emitter; a collector; a base formed between the emitter and collector and having a magnetization pinned layer of ferromagnetic material; and a tunnel barrier layer of antiferromagnetic material formed between the magnetization pinned layer of ferromagnetic material and the emitter or between

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the collector and the magnetization pinned layer of ferromagnetic material.

The grounds of rejection equate the claimed emitter and collector with Hujanen's layers 16 and 12, respectively (see Figs. 1 and 2 of the Hujanen reference). Applicants respectfully traverse this interpretation. As disclosed in paragraph [0024] of the Hujanen reference, the layers 12 and 16 disclose a hard ferromagnetic layer and a soft ferromagnetic layer, respectively, and not an emitter and collector as claimed. As discussed in paragraph [007] of the Hujanen reference, a soft magnetic layer means that relatively small magnetic fields can change the magnetic polarity of the material, and a hard magnetic layer means that the polarity of the material changes only under the influence of a relatively large magnetic field.

Applicants further submit that the structure shown in Figure 4 of Hujanen fails to show a "tunnel barrier layer" as claimed in independent claims 1, 7, and 10. Rather, as discussed in paragraph [0040] of the Hujanen reference, Figure 4 merely discloses the silicon emitter 42, four layers of platinum 40, cobalt 38, copper 36, and cobalt 34, and the silicon collector 32. In fact, the grounds of rejection equate the claimed tunnel barrier with the insulator 14 shown in Figs. 1 and 2. However, as discussed above, the structures shown in Figs. 1 and 2 lack the claimed emitter and collector.

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It is respectfully submitted that the application is in form for allowance, and a favorable action to that effect is respectfully requested.

Respectfully submitted,

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